

THE DISABLED SOLDIER
IN ELECTRICAL RAILWAY SERVICE

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The Disabled Soldier in Electrical Railway Service

Electric Railway Journal
Sept. 18, 1918



Dr. Wheeler Teaching Coil Taping to a Blind Boy



Blind Worker Taping Large Armature Coils

The Disabled Soldier in Electric Railway Service

Reclaiming the Disabled Soldier Is an Important Problem — Blind Men Wind Coils—One-Armed Men Do Oxyacetylene Welding and Shop Work

SALVAGING the disabled man-power of the country is another of the many important problems which the war has thrust upon us and which is demanding immediate attention. Facts are sometimes hard to face, but they must be faced, and much as we may dislike to think about the matter, a very large number of disabled men will be added by the war to the army of those disabled in industrial accidents who are already with us.

Now the reasons for rendering our disabled man-power useful are two-fold. In the first place, the terrific drain on our man-power necessitates the maximum industrial output from everyone not participating directly in the combat. In industry and elsewhere, others must to a greater or less extent replace the able-bodied men who have been called to the colors. The Germans boast that they have 20,000 oxyacetylene welders, all disabled men, now at work. The results obtained from the special training or re-education of the disabled soldiers of our allies likewise indicate that we as yet know little about what may be done in the way of developing the talents and services of those who, by reason of physical impairment, are not able to compete in all lines with the able-bodied worker.

Secondly, one of the greatest services that can be rendered a disabled man is to give him an opportunity to work on equal footing with other men at some-

thing which pays him well and saves his self-respect by rendering him independent of others. The general attitude toward the cripple, whether his disability be due to war or something else, is changing rapidly.

The old idea was that the soldier had performed his duty to society in the service which wrought his disability, and that it was the duty of society to support him in idleness for the remainder of his years. The industrial cripple was an object of emotional pity rather than constructive sympathy.

The new attitude is that disabled soldiers (and workers as well) shall receive just compensation to offset their handicap, but that in addition they shall for their own good, material and spiritual, and for the good of society at large, follow some productive occupation, that their jobs shall be with other workers, doing things that others do, producing things that have a value in the markets of the world and are not patently labeled as the work of the maimed, halt and blind — charity protégés — for which a market must be forged out of the sympathies of benevolently minded folk. Furthermore, it is felt that they shall be properly trained in a suitable occupation so as to remove their handicap as much as possible.

None of the countries at war, not even Germany with all her self-vaunted efficiency, had made any preparations for



He May Come Back Crippled

the proper training of disabled soldiers prior to the beginning of the war. In the different countries the problem is being attacked in different ways. In some, private institutions are initiating and carrying on the work. In others, it is strictly under government control, and in still others a combination of the two methods of control obtains. As a result, however, of careful studies made of the methods used elsewhere, our government, in a law enacted early this summer, has placed the responsibility for the training and re-education of disabled soldiers and sailors in the hands of the Federal Board of Vocational Education.

This board is making a careful study of the problem in all its aspects. It has already accumulated a vast fund of data and is busily engaged in providing means of instruction for those already on the disabled list. Not only must the men be thoroughly trained or re-educated, but also they must be properly placed if their employment is not to result in disappointment to both the employer and the employee. The various electrical industries, because of the stability of employment which they offer, seem a particularly attractive field for the handicapped worker.

WHAT THE RETURNED SOLDIER CAN DO IN RAILWAY SERVICE

A writer in an unsigned article in the *Electrical Review*, London, for June 7, 1918, comments that as long as the war lasts a returned soldier is a disabled soldier, and lists as in the accompanying table the occupations of interest to the electric railway industry, in which disabled men may be employed. The disqualifying disablements are also given. Presumably the list summarizes British experience in the matter.

There is some conflict among authorities as to what may constitute a disqualifying disablement. However, it is of interest to know that the skill gained in training for one occupation increases the ability to work in others that at first seem impossible. The bar of disqualification recedes as the process of re-education proceeds.

While this country has now made a national matter of the re-educational problem, much valuable pioneer work has been done in the last year by the Red Cross Institute for Crippled and Disabled Men, 311 Fourth Avenue, New York. This institute is now giving training in mechanical drafting, artificial limb making, printing, motion-picture operating, jewelry work, and oxyacetylene welding and cutting. Some photographs reproduced herewith, selected from the files of the institute, show the possibilities of the disabled man. The loss of a hand, or even an arm, does not necessarily disqualify a man from becoming a draftsman, oxyacetylene welder, machine tool operator or section hand. It does mean, however, that his remaining body members must be re-educated so that they may take over the work of the missing member, assisted, of course, in many cases by artificial helpers. In addition to giving actual training to crippled men, the institute is also training teachers for re-educational work, accumulating data and publishing general information on the subject for the use of those who may be interested.

Pioneer work along the line of rendering the sightless independent and productive units in the social com-

munity has been done within recent months by Dr. Schuyler S. Wheeler, president Crocker-Wheeler Company, Ampere, N. J. Here again the fundamental principle of getting the disabled person into actual industry has been followed. Dr. Wheeler organized what is known as "The Double-Duty Finger Guild," 22 Park Avenue, Ampere, N. J., in which sightless persons are trained for industrial service.

TRAINING THE BLIND

At first the training was limited to the taping of armature coils for motors and generators. Several photographs here reproduced show the method of training used and the type of work now being done. The sightless workers are started at a weekly wage of \$8, and after attaining some proficiency are placed with other workers, who are not so disabled, on piecework or at an hourly rate. The rivalry of piecework competition with seeing workers is most stimulating to the blind. If after two months' instruction the blind student shows no possibilities along the line of work in which he is being instructed, he is dropped. Usually, however, after one month's training, the blind worker does as much work in eight hours as the average "sighted" worker does in five hours, and at the end of a year does 90 per cent as much as the sighted employee working under similar conditions.

As to quality of the work done, a careful inspection of such work indicates a rather higher order of performance than that obtained from the other workers. The infinite patience and high finger sensitivity of the blind make this record possible. The experience at the Crocker-Wheeler works seems to be that those who have been sightless for the shortest time and have never been trained in the older forms of "blind" work make the best workmen, and those who have long been the recipients of charity, the worst.

As with other disablements, training in one occupation seems greatly to increase the ability of the worker to do satisfactory work in other occupations and to

BRITISH LIST OF ELECTRIC RAILWAY OCCUPATIONS AND DISQUALIFYING DISABLEMENTS

Position	Disqualifying Disablement
1. Switchboard attendant.....	Shell shock (steady nerves required)
2. Substation attendant.....	Heart bad (danger of electrical shock)
3. Air-compressor or hydraulic-plant attendant.....	Loss of arm (cannot work regulator handles)
4. Battery attendant.....	Loss of leg (cannot get about quickly when there is a breakdown)
5. Engine driver.....	Loss of hearing (cannot detect things starting to go wrong by sound)
6. Greaser.....	Loss of smell (cannot smell machines or cables getting hot)
7. Stoker.....	Heart bad (hard work required)
8. Meter or instrument repairer.....	Loss of arm (cannot work regulators, etc.)
9. Armature and coil winder.....	Loss of leg (cannot get about quick enough)
10. Telephone work.....	Loss of arm (full complement of fingers required)
11. Bell work.....	Loss of eye (good eyesight required, and must be able to judge distances accurately)
12. Signaling devices.....	Loss of arm (both hands required)
13. Meter inspector.....	Loss of hearing
14. Motor inspector.....	Loss of leg, hearing, eye
15. Motor repairer.....	Loss of leg, hearing, smell
16. Installation inspector.....	Loss of leg or arm, hearing, smell, bad heart
17. Installation complaints.....	Loss of leg, hearing, arm
18. Heater and cooker inspector.....	Loss of leg, arm, hearing, smell, bad heart
19. Heater and cooker repairer.....	Loss of leg, arm, hearing, smell
20. Mains fuse inspecting.....	Loss of arm, hearing, smell
21. Mains records.....	Loss of leg, arm, smell, bad heart
22. Meter tester.....	Loss of arm, eye
23. Coal, water and oil tester.....	Loss of arm, eye, hearing, smell
24. Gateman.....	Loss of arm, hearing, smell
25. Timekeeper.....	Loss of hearing, arm
26. Clerical work.....	

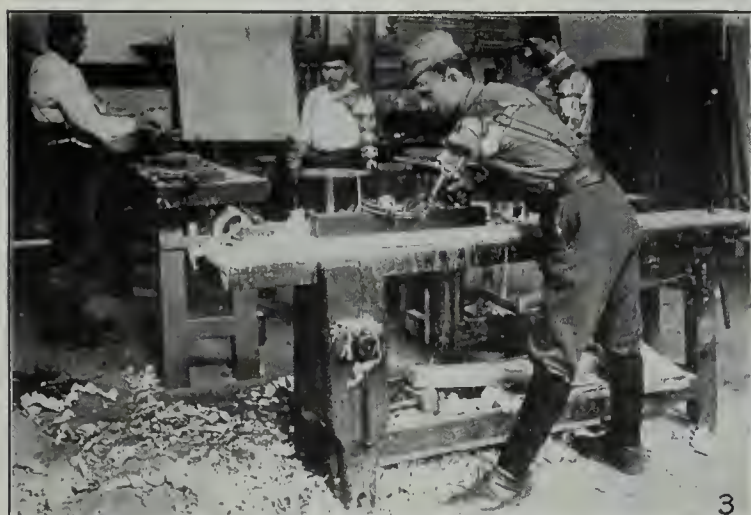
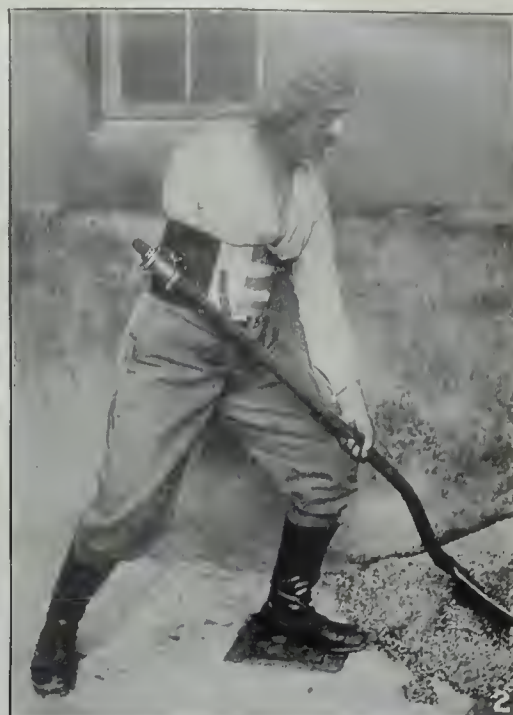


Fig. 1—Returned Canadians Learning of Oxy-acetylene.
Fig. 2—A French Peasant "Inutile" Using a Shovel.
Fig. 3—A Crippled Serbian Working in Wood.
Fig. 4—One-Armed Belgians Learning Bench Work.

Fig. 5—The Loss of One Arm Does Not Balk an Italian Machinist.
Fig. 6—Losing a Right Arm Not an Unsurmountable Obstacle in Mechanical Drafting.

How Our Allies Are Rehabilitating Their Disabled Soldiers

increase his self-reliance. Workers trained in the above-named guild are now doing such things as placing pins on cards in a safety-pin factory, twisting small wires for telephone construction, helping put strips on automobile tires, painting and polishing the arms and legs of dolls, etc. In the factory of the Crocker-Wheeler Company blind workers weigh and stack rotor cores, assemble and rivet pole shoes, sort rotor punchings and tape steel coils. The fact that most of their work has

who will return to us disabled. Donald C. McMurtie, director of the Red Cross Institute referred to, as the result of a study of European statistics so far available, estimates that for a force of 1,000,000 men in the field for one year, 30,000 permanent disabilities may be expected. D. H. McDougall, assistant general manager Toronto Power Company, in discussing the matter before the last convention of the National Electric Light Association, stated that of the 400,000 men who have



Sightless Workers Taping Coils for the Crocker-Wheeler Company

been going directly into machines for government service has been a great incentive to the blind workers in this factory. The rates of pay received in the above industries range from 15 cents per hour, with a piece-work bonus, to 30 cents per hour.

Recently, Dr. Wheeler was called to Europe by the English and French governments for advice in connection with their re-educational work for disabled soldiers. As a result of the institutional work established there, more than 100 blind soldiers are now employed and more than 500 are receiving special instruction at the works of the French Thomson-Houston Company. In England several industrial training schools for the blind have been started, and a number of blind soldiers are now employed at Golder's Green, the chief railway shop of the "London Underground." In both countries other companies engaged in similar work are employing blind workers as fast as they can be trained. In England the British Electrical & Allied Manufacturers' Association, through Hugo Hirst, president General Electric Company, Ltd., has agreed to foster the movement and give employment to all the blind who may be fitted for the work of that industry.

In order to make it possible for the blind to proceed to and from their work with ease and safety, some minor changes in the factory buildings are usually necessary, so as to provide separate entrances for the blind workers. It also must be pointed out that only those who are physically able otherwise can be trained successfully for service in any special industrial occupation.

It is difficult to estimate the number of fighting men

gone from Canada, 35,000 had returned disabled by April 1, 1918. Of these, 1230 were men with amputations, as follows: 520 above the knee, 320 below the knee, 259 above the elbow, 115 below the elbow. Also, fifty were blind. Considering the fierce nature of modern warfare, it is particularly fortunate that the blind are so few, numbering only one out of every 700 permanent disabilities.

Naturally, all of the disabled men are not what might be termed "industrially fit." In fact, a comparatively large number are suffering from such a complication of things as to render any occupation impossible. A great many others are able to go back to old occupations. The Canadian experience has been that about 10 per cent of the returned men have required special training. For these, 195 courses are being administered in twenty-five different schools maintained for the special purpose of giving this training.

Although we are hardly started in the war, the Federal Board of Vocational Education, according to press reports, is confronted with the problem of finding employment for about 1800 men whose claims of disability have been approved by the Federal War Risk Bureau. Only elaborate surveys of the industries will make it clear as to the possibilities in the various lines of work. Several electric railways are trying out men who have lost a leg or some fingers, and the experience seems to be that such handicaps are not disqualifying. Doubtless there are many other places in the electric railway industry than those mentioned, where disabled men may be employed with mutual advantage to both parties concerned.

